



KERN & Sohn GmbH

Ziegelei 1

D-72336 Balingen

E-Mail: info@kern-sohn.com

Phone: +49-[0]7433- 9933-0

Fax: +49-[0]7433-9933-149

Internet: www.kern-sohn.com

Operating and Installation Instructions Display Unit

KERN KIB-TM

Version 1.1

2018-02

GB



KIB-TM-BA_IA-e-1811



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Version 1.1 2018-02

Operating and installation instructions Display unit

Contents

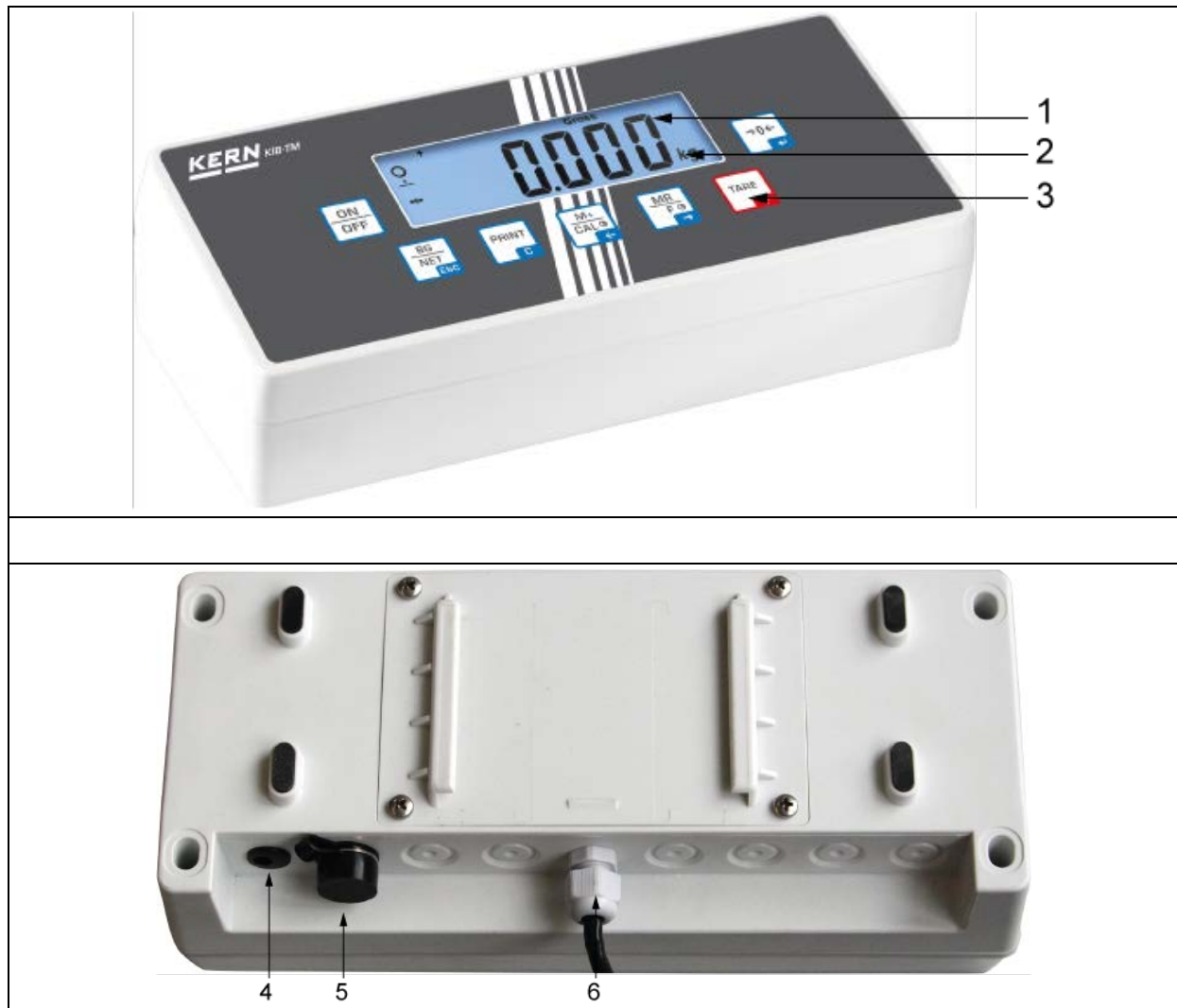
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1 Technical data














KERN	KIB-TM
Display	7-digit
Resolution (non-verifiable)	30,000 d
Weighing ranges	2
Divisions	1,2,5,...10n
Weighing Units	g, oz, kg, lb
Functions	Tolerance weighing, totalling, parts counting, percentage calculation, animal weighing
Display	LCD 24 mm digits with back lighting
Load cell resistance	87 Ω
Range calibration	We recommend ≥ 50 % max.
Data output	RS232
Electric Supply	Input voltage power unit 100 V - 240 V, 50 / 60 Hz
	Input voltage device 12V, 1000mA
Display unit (W x D x H) mm	260 x 115 x 70
Admissible ambient temperature	-10°C – 40°C
Humidity of air	max. 80 % (not condensing)
Net weight	0.8 kg
Rechargeable battery (optional)	Operating time backlight on 22 h
	Operating time backlight off 36 h
	Loading time 3 h
RS 232 interface	Standard

2 Appliance overview





1. Weight display
2. Weighing unit
3. Keyboard
4. Connection of mains adapter
5. RS232 interface
6. Input connection load cell cable


2.1 Keyboard overview




Button	Function
	<ul style="list-style-type: none"> Turn on/off
 Navigation button ←	<ul style="list-style-type: none"> Zeroing Confirm entry
 Navigation button ↑	<ul style="list-style-type: none"> Taring At numeric input increase flashing digit Scroll forward in menu
 Navigation button →	<ul style="list-style-type: none"> Display sum total Digit selection to the right
 Navigation button ←	<ul style="list-style-type: none"> Add weighing value to summation memory Digit selection to the left
 C	<ul style="list-style-type: none"> Calculate weighing data via interface Delete
 ESC	<ul style="list-style-type: none"> Change between gross ⇔ and net weight Back to menu/weighing mode
 + 	<ul style="list-style-type: none"> Call up animal weighing function
 + 	<ul style="list-style-type: none"> Retrieve tolerance weighing
 + 	<ul style="list-style-type: none"> Delete total added memory


2.1.1 Numeric entry via navigation keys

⇒ Press , the current setting will be displayed. The first digit will be flashing and is ready for changing.

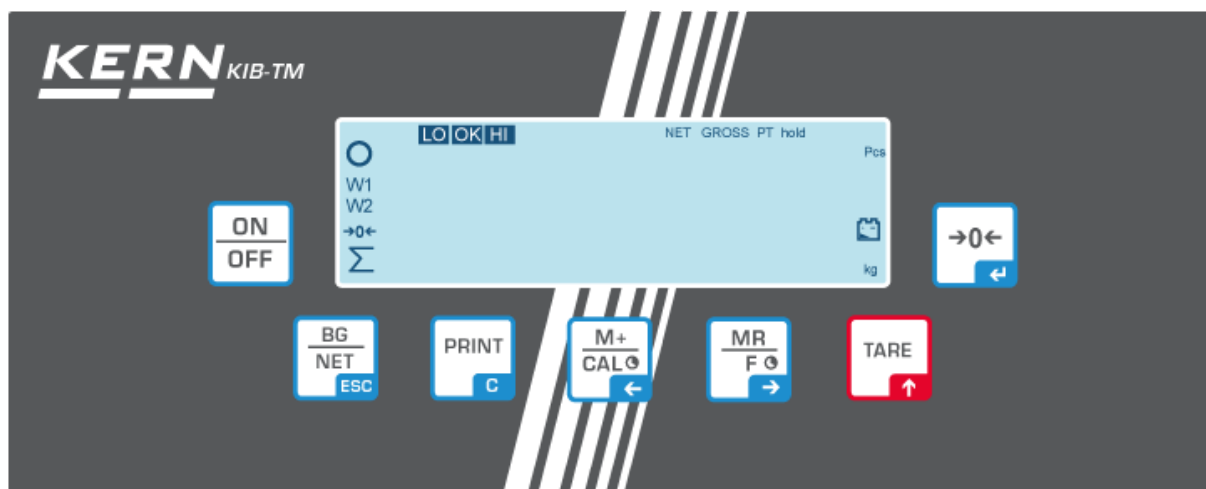
⇒ If you do not wish to change the first digit, press  and the second digit will start flashing.



Each time you press , the display will move to the subsequent digit, after the last digit the display will return to the first digit.

⇒ To change the selected (flashing) digit, press  repeatedly until the desired value is displayed. Then press  to access further digits and change them by .

⇒ Complete your entry by .

2.2 Overview of display



Display	Significance
W1	Weighing range 1
W2	Weighing range 2
	Rechargeable battery very low
	Stability display
→0←	Zero indicator
GROSS	Gross weight
NET	Net weight
PT	Pre-Tare
hold	Hold function
Pcs	Parts counting
Kg	Weighing unit
Σ	Totalization
LO OK HI	Indicators for weighing with tolerance range

3 Basic Information (General)

3.1 Proper use

The display unit acquired by you is used in combination with a weighing plate and serves to determine the weighing value of material to be weighed. It is intended to be used as a “non-automatic weighing system”, i.e. the material to be weighed is manually and carefully placed in the centre of the weighing plate. As soon as a stable weighing value is reached the weighing value can be read.

3.2 Improper Use

Do not use display unit for dynamic weighing. In the event that small quantities are removed or added to the material to be weighed, incorrect weighing results can be displayed due to the “stability compensation“ in the display unit. (Example: Slowly draining fluids from a container on the balance.)

Do not leave permanent load on the weighing pan. This may damage the measuring system.

Impacts and overloading exceeding the stated maximum load (max) of the weighing plate, minus a possibly existing tare load, must be strictly avoided. Both, the weighing plate and the display unit may be damaged during this process.

Never operate display unit in explosive environment. The serial version is not explosion protected.

Changes to the display unit's design are not permitted. This may lead to incorrect weighing results, safety-related faults and destruction of the display unit.

The display unit may only be operated in accordance with the described default settings. Other areas of use must be released by KERN in writing.

3.3 Warranty

Warranty claims shall be voided in case

- Our conditions in the operation manual are ignored
- The appliance is used outside the described uses
- The appliance is modified or opened
- Mechanical damage or damage by media, liquids, natural wear and tear
- The appliance is improperly set up or incorrectly electrically connected
- The measuring system is overloaded

3.4 Monitoring of Test Resources

In the framework of quality assurance the measuring-related properties of the display unit and, if applicable, the testing weight, must be checked regularly. The responsible user must define a suitable interval as well as type and scope of this test. Information is available on KERN's home page (www.kern-sohn.com) with regard to the monitoring of display units' test substances and the test weights required for this. In KERN's accredited DKD calibration laboratory test weights and display units may be calibrated (return to the national standard) fast and at moderate cost.

4 Basic Safety Precautions

4.1 Pay attention to the instructions in the Operation Manual



- ⇒ Carefully read this operation manual before setup and commissioning, even if you are already familiar with KERN balances.
- ⇒ All language versions contain a non-binding translation. The original German is binding.

4.2 Personnel training

The appliance may only be operated and maintained by trained personnel.

5 Transport and storage

5.1 Testing upon acceptance

When receiving the appliance, please check packaging immediately, and the appliance itself when unpacking for possible visible damage.

5.2 Packaging / return transport



- ⇒ Keep all parts of the original packaging for a possibly required return.
- ⇒ Only use original packaging for returning.
- ⇒ Prior to dispatch disconnect all cables and remove loose/mobile parts.
- ⇒ Reattach possibly supplied transport securing devices.
- ⇒ Secure all parts such as the glass wind screen, the weighing platform, power unit etc. against shifting and damage.

6 Unpacking and installation

6.1 Installation Site, Location of Use

The display units are designed in a way that reliable weighing results are achieved in common conditions of use.

Precise and fast work is achieved by selecting the right place for your display unit and your weighing plate.

On the installation site observe the following:

- Place the display unit and the weighing plate on a stable, even surface.
- Avoid extreme heat as well as temperature fluctuation caused by installing next to a radiator or in the direct sunlight;
- Protect the display unit and the weighing plate against direct draft from open windows or doors.
- Avoid jarring during weighing;
- Protect the display unit and the weighing plate against high humidity, vapours and dust.
- Do not expose the display unit to extreme dampness for longer periods of time. Non-permitted condensation (condensation of air humidity on the appliance) may occur if a cold appliance is taken to a considerably warmer environment. In this case, acclimatize the disconnected appliance for ca. 2 hours at room temperature.
- Avoid static charge of goods to be weighed or weighing container.

Major display deviations (incorrect weighing results) may be experienced should electromagnetic fields (e.g. due to mobile phones or radio equipment), static electricity accumulations or instable power supply occur. Change location or remove source of interference.

6.2 Unpacking

Carefully remove the display unit from packaging, remove plastic cover and place it in the designated work area.

and place it in the designated work area.

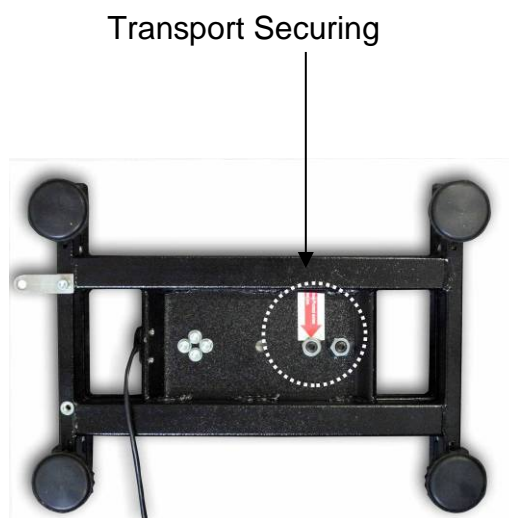
Mount the display unit in a way that facilitates operation and where it is easy to see.

6.3 Scope of delivery / serial accessories:

- Display Unit
- Mains adapter
- Table leg
- Wall bracket
- Operating manual

6.4 Transportation lock (illustration example)

Please note: if the display unit is used together with platform with transportation lock, this transportation lock must be released prior to use:



6.5 Error message



As soon as an error message appears in the balance display, the balance must not more be used, e.g. Err 4

6.6 Placing

Mount the display unit in a way that facilitates operation and where it is easy to see.

There are many ways of positioning the display unit, such as free-standing or wall-mounted (optional).

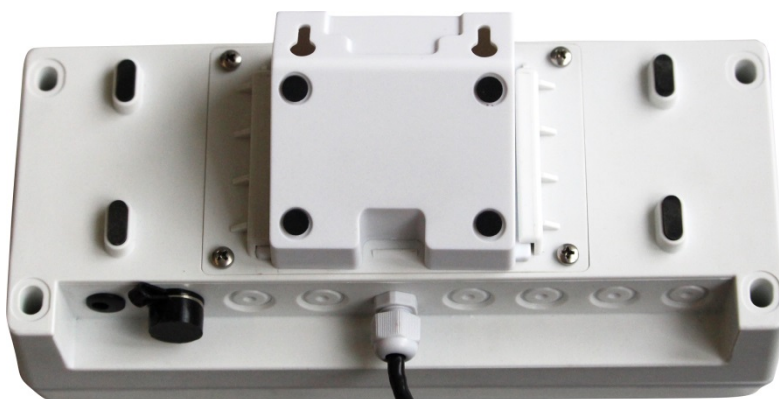


Wall-mounted (optional)



Free standing

Version with support base/wall bracket



Version with tripod EOC-A05 (optional)



In order to raise the display, the display unit can be mounted on an optional stand.

Usage with fitting panel EOC-A03 (optional):



1. Platform
2. Fitting panel
3. Display Unit

6.7 Mains connection



Select a country-specific power plug and insert it in the mains adapter.



Check, whether the voltage acceptance on the scales is set correctly. Do not connect the scales to the power mains unless the information on the scales (sticker) matches the local mains voltage.

Only use KERN original mains adapter. Using other makes requires consent by KERN.




Important:

- Before starting your weighing balance, check the mains cable for damage.
- Ensure that the power unit does not come into contact with liquids.
- Ensure access to mains plug at all times.

6.8 Storage battery operation (optional)

Before the first use, the battery should be charged by connecting it to the mains power supply for at least 12 hours.



If the weight display shows the flashing symbol , this is an indication that the capacity of the rechargeable battery is almost exhausted. Charge the battery with the help of the supplied power pack.

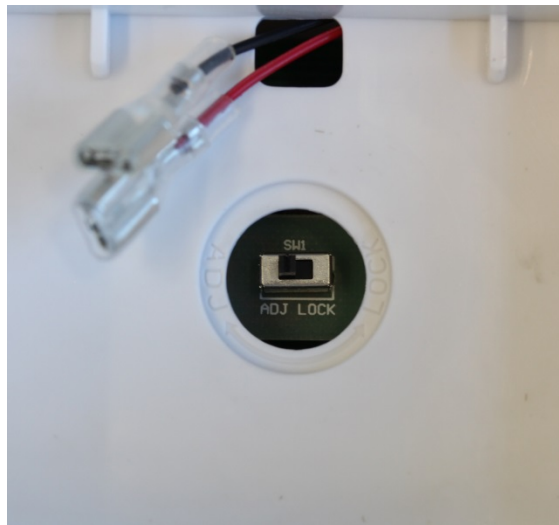
6.9 Adjustment

As the acceleration value due to gravity is not the same at every location on earth, each display unit with connected weighing plate must be coordinated - in compliance with the underlying physical weighing principle - to the existing acceleration due to gravity at its place of location (only if the weighing system has not already been adjusted to the location in the factory). This adjustment process must be carried out for the first commissioning, after each change of location as well as in case of fluctuating environment temperature. To receive accurate measuring values it is also recommended to adjust the display unit periodically in weighing operation.

i	<ul style="list-style-type: none">• Prepare the required adjustment weight. The adjustment weight to be used depends on the capacity of the weighing system. Carry out adjustment as near as possible to the weighing system's maximum weight. Info about test weights can be found on the Internet at: http://www.kern-sohn.com.• Observe stable environmental conditions. Stabilisation requires a certain warm-up time.
----------	--

Adjustment switch:

The adjustment switch is located in the battery cartridge(see the photo).













Adjustment switch in the "ADJ" setting:

- All menu items are available.

Adjustment switch in the "LOCK" position:

- Some of the menu items are locked (see the section "Menu overview")
To unblock these menu items, place the adjustment switch in the "ADJ" position.

Call up menu:

- ⇒ Switch-on balance and during the selftest press . „Pn“ will be displayed
- ⇒ Press , , , subsequently, the first menu block „PO CHK“ will be displayed.
- ⇒ Press  repeatedly until „P3 CAL“ will be displayed.
- ⇒ Acknowledge with . „CoUnt“ is displayed.
- ⇒ Press  repeatedly until „CAL“ will be displayed.
- ⇒ Acknowledge using , the current setting is displayed.
- ⇒ Press  to select the desired setting and confirm by .
 - noLin = adjustment
 - LineAr = linearization, see chap. 6.10

Pn

POCHK

P3CAL


CoUnt

CAL

noLin

↓↑
LineAr


⇒ How to carry out adjustment:

⇒ Confirm menu setting „noLin“ by .
Ensure that there are no objects on the weighing plate.

⇒ Wait for stability display, then press .

⇒ The currently set adjustment weight will be displayed.
Either use adjustment weight displayed
or
change with the help of the navigation keys (see chap.2.1.1),
the active digit will be flashing.

⇒ Confirm value for adjustment weight by pressing .

⇒ Carefully place adjustment weight in the centre of the
weighing plate. Wait for stability display, then press .
"PASS" will be shown briefly, followed by the weight of the
placed adjustment weight.

⇒ Remove adjustment weight, balance will return into weighing
mode automatically. An adjusting error or incorrect
adjustment weight will be indicated by the error message;
repeat adjustment procedure.

noLin



UnLd

○ UnLd

30000 kg

(example)

○ LoAd

PASS

○ GROSS
→0← 30.000 kg

○ GROSS
→0← 0.000 kg

6.10 Linearization

Linearity shows the greatest deviation of a weight display on the scale to the value of the respective test weight according to plus and minus over the entire weighing range. If linearity deviation is discovered during a monitoring of test resources, you can improve this by means of linearization.




- In balances with a resolution of > 15 000 dividing steps carrying out a linearisation is recommended.
- Carrying out linearization is restricted to specialist staff possessing well acquainted with the workings of weighing scales.
- The test weights to be used must be adapted to the weighing scale's specifications; see chapter "Monitoring of test equipment".
- Observe stable environmental conditions. Stabilisation requires a certain warm-up time.
- After successful linearisation you will have to carry out calibration; see chapter 3.4 "Monitoring of test equipment".

Procedure:

⇒ Call-up menu item P3 CAL⇒Cal⇒Liner, see chap. 6.9

Liner

⇒ Confirm by , the password query „Pn“ will be displayed.

Pn

⇒ Press , ,  subsequently.

° Ld 0


Ensure that there are no objects on the weighing pan.

⇒ Wait for stability display, then press .

° Ld 1


⇒ When “Ld 1” is displayed, put the first adjustment weight (1/3 max) carefully in the centre of the weighing platform.

° Ld 2

Wait for stability display, then press .


⇒ When “Ld 2” is displayed, put the second adjustment weight (2/3 max) carefully in the centre of the weighing platform.

° Ld 3

Wait for stability display, then press .

⇒ When “Ld 3” is displayed, put the third adjustment weight (max) carefully in the centre of the weighing platform.

PASS

Wait for stability display, then press .

“PASS” will be shown briefly, followed by the weight of the placed adjustment weight.


° 30.000 kg

⇒ Remove adjustment weight, balance will return into weighing mode automatically. An adjusting error or incorrect adjustment weight will be indicated by the error message; repeat adjustment procedure.

° 0.000 kg


7 Operation

7.1 Start-up

- ⇒ Press , the appliance will carry out a self-test. As soon as the weight display appears, the instrument will be ready to weigh.




7.2 Switching Off

- ⇒ Press , the display will disappear.

7.3 Zeroing


Resetting to zero corrects the influence of light soiling on the weighing plate. The unit is equipped with an automatic zero setting function. Therefore the unit can be reset to zero at any time as follows:

- ⇒ To unload the weighing system

- ⇒ Press  and zero display as well as indicator →0← will appear.



7.4 Simple weighing

- ⇒ Place goods to be weighed on balance.
 ⇒ Wait for stability display .
 ⇒ Read weighing result.



Overload warning

Overloading exceeding the stated maximum load (max) of the device, minus a possibly existing tare load, must be strictly avoided. This could damage the instrument.

Exceeding the maximum load is indicated by the display




and an audio sound. Unload weighing system or reduce preload.

7.5 Switch-over weighing unit


How to enable weighing units:

⇒ Invoke menu item **P5 Unt**, see chap. 8


P5Unt

⇒ Press  and the first weighing unit with the current setting will be displayed.


on^{kg}

⇒ To enable [on] / disable [off] the displayed weighing unit, press .

↕
off^{kg}

⇒ Acknowledge with . The next unit with the current setting will be displayed.

on^{lb}


⇒ To enable [on] / disable [off] the displayed weighing unit, press .

⇒ Acknowledge with .

⇒ Repeat sequence for each weighing unit.


Note:

„tj“ and „Hj“ cannot be activated at the same time, only either ... or

⇒ Press back to weighing mode  several times.

○
GROSS
0.000^{kg}
→0←


Switch-over weighing unit:

⇒ Keep  pressed, the display changes over to the weighing units activated before (e.g. kg ↔ lb)

○
GROSS
1.000^{kg}



↕
○
GROSS
2.205^{lb}

7.6 Weighing with tare

- ⇒ Deposit weighing vessel. After successful standstill control press the  button. Zero display and indicator **NET** appear.




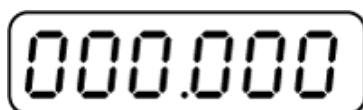
The weight of the container is now internally saved.


- ⇒ Weigh the material, the net weight will be indicated.
- ⇒ The weight of the weighing container will be displayed as a minus number after removing the weighing container.
- ⇒ The tare procedure can be repeated as many times as necessary, for example with initial weighing of several components for a mix (add-on weighing). The limit is reached when the taring range capacity (see type plate) is full.
- ⇒ To change between gross weight and net weight, press .
- ⇒ To delete the tare value, remove load from weighing plate and press .

7.6.1 Pre-Tare

It is possible to enter a pre-tare value beforehand.

- ⇒ Ensure that there are no objects on the weighing pan.
- ⇒ Press  and hold until 0.0 is displayed and the left digit is flashing



- ⇒ Use the arrow keys to enter the pre-tare value and confirm by pressing . The pre-tare value will be shown as a negative value.

7.7 Weighing with tolerance range

You can set an upper or lower limit when weighing with tolerance range and thus ensure that the weighed load remains exactly within the set limits.

During tolerance tests such as dosing, portioning and sorting the unit will indicate exceeded or undershot limits by emitting an optical or acoustic signal.

Audio signal:

The acoustic signal depends on the settings in menu block „BEEP“.

Options:

- no Acoustic signal turned off
- ok An acoustic signal sounds when load is within tolerance limits
- ng An acoustic signal sounds when load is beyond tolerance limits

Optical signal:

The indicators **LO** **OK** **HI** show whether the load is within the two set tolerance limits.

LO

Target quantity / target weight below minimum tolerance limit

OK

Target quantity / target weight within tolerance range

HI



Target quantity / target weight exceeds maximum tolerance limit

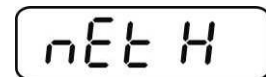
The settings for tolerance check may be called up either via menu block „**P0 CHK**“ (see chap. 8) or faster via the key combination




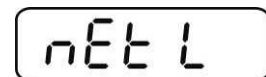
7.7.1 Tolerance check for target weight


Settings

⇒ Press  and  at the same time in weighing mode.



⇒ Press  until the display for entering the lower limit value *nEt L* appears.




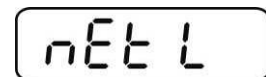
⇒ Press , the current setting will be displayed.




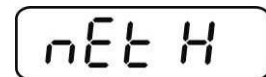
⇒ To enter the lower limit, e. g. 1000 Kg, press the navigation keys (See chap. 2.1.1); the currently enabled digit will be flashing.




⇒ Confirm input by .



⇒ Press  repeatedly until *nEt H* is displayed.




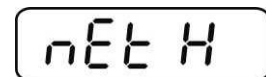
⇒ Press , the current setting for the upper limit will be displayed.




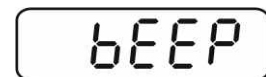
⇒ Press the navigation keys (See chap. 2.1.1) to enter the upper limit, e.g. 1100 kg; the currently enabled digit will be flashing.





⇒ Confirm input by .





⇒ Press  repeatedly until *bEEP* is displayed.





⇒ Press  , the current setting for the acoustic signal will be shown.



⇒ Select desired setting (no, ok, ng, s. chap. 8) by .

⇒ Confirm input by .






⇒ Press  , weighing system is in tolerance weighing mode. From here evaluation takes place whether the goods to be weighed are within the two tolerance limits.



Weighing with tolerance range

⇒ Tare when using a weighing container.

⇒ Put on goods to be weighed, tolerance control is started. The signal lights indicate whether the load is within the two set limits.



Load below specified tolerance	Load within specified tolerance	Load exceeds specified tolerance
 Indicator LO will be displayed	 Indicator OK will be displayed	 Indicator HI will be displayed



- The tolerance control is not active when the weight is under 20d.
- To delete limits, enter "00.000 kg".

7.7.2 Tolerance check for target quantity


Settings

⇒ Press  and  at the same time in weighing mode.


0.000 kg



nEt H

⇒ Press  until the display for entering the lower limit value *PCS L* appears.


PCS L

⇒ Press , the current setting will be displayed.


000000^{Pcs}

⇒ To enter the lower limit, e. g. 75 items, press the navigation buttons (see chap. 2.1.1); the currently enabled digit will be flashing.


000075^{Pcs}

⇒ Confirm input by .

PCS L

⇒ Press  repeatedly until *PCS H* is displayed.


PCS H

⇒ Press , the current setting for the upper limit will be displayed.


000000^{Pcs}

⇒ To enter the upper limit, e. g. 100 items, press the navigation buttons (see chap. 2.1.1); the currently enabled digit will be flashing.


000100^{Pcs}


⇒ Confirm input by .


PCS H


⇒ Press  repeatedly until *beEP* is displayed.


beEP


⇒ Press , the current setting for the acoustic signal will be shown.



⇒ Select desired setting (no, ok, ng, s. chap. 8) by .

⇒ Confirm input by .



⇒ Press ; weighing system is in tolerance weighing mode. From here evaluation takes place whether the goods to be weighed are within the two tolerance limits.






Weighing with tolerance range

⇒ Set item weight, see chap. 7.10.

⇒ Tare when using a weighing container.


⇒ Put on goods to be weighed, tolerance control is started. The signal lights indicate whether the load is within the two set limits.

Load below specified tolerance	Load within specified tolerance	Load exceeds specified tolerance
 <p>Indicator LO will be displayed</p>	 <p>Indicator OK will be displayed</p>	 <p>Indicator HI will be displayed</p>



- The tolerance control is not active when the weight is under 20d.
- To delete limits, enter „00000 PCS“.

7.8 Manual totalizing



With this function the individual weighing values are added into the summation memory by pressing  and edited, when an optional printer is connected.



- Menu setting:
„P2 COM“ ⇒ „MODE“ ⇒ „PR2“, see chap. 8
- The totalizing function is not active when the weight is under 20d.

Add up:

⇒ Place load A.


Wait until the stability display  appears, then press . The weight value will be saved and printed if an optional printer is connected.

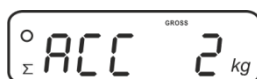


⇒ Remove the weighed good. More weighed goods can only be added when the display ≤ zero.



⇒ Place good to be weighed B.

Wait until the stability display appears, then press . The weight value will be added to the summation memory and printed, as required. The number of weighings, the whole weight and the currently placed weight will be shown in succession.





⇒ Add more weighed goods as described before.



Please note that the weighing system must be unloaded between the individual weighing procedures.

⇒ This process may be repeated 99 times or till such time as the capacity of the weighing system has been exhausted.

Display and edit sum „Total“:

⇒ Press , the number of weighings, followed by the total weight will be displayed for 2 sec. Press  to print out this display.

Delete weighing data:

⇒ Press  and  at the same time. The data in the summation memory are deleted.



Sample log (KERN YKB-01N):

Menu setting "P2 COM" ⇒ "Lab 2" / Prt 4 - 7"

```
*****
No. :      1
GS:    2.005kg
Total:   2.005kg
*****
```

First weighing



```
*****
No. :      2
GS:    1.493kg
Total:   3.498kg
*****
```

Second weighing



```
*****
No. :      3
GS:    2.997kg
Total:   6.495kg
*****
```

Third weighing




```
*****
Total
No. :      3
Total:   6.495kg
*****
```

Number of
weighings/
Total



i For additional sample logs see chap. 0

7.9 Automatic adding-up

With this function the individual weighing values are automatically added into the summation memory when the balance is unloaded without pressing  and edited, when an optional printer is connected.

- Menu settings:
 „P2 COM“ ⇒ „MODE“ ⇒ „AUTO“, s. chap. 8
 Indicator Σ will be displayed.



Add up:

- ⇒ Place load A.

After the standstill control sounds a signal tone. The weighing value will be added to the summation memory and printed.



- ⇒ Remove the weighed good. More weighed goods can only be added when the display \leq zero.

- ⇒ Place good to be weighed B.

After the standstill control sounds a signal tone. The weighing value will be added to the summation memory and printed, as required. The number of weighings, followed by the currently placed weight will be shown in succession.



- ⇒ Add more weighed goods as described before.
 Please note that the weighing system must be unloaded between the individual weighing procedures.
- ⇒ This process may be repeated 99 times or till such time as the capacity of the weighing system has been exhausted.




For how to display and delete weighing data as well as sample logs see chap. 7.8

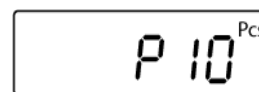
7.10 Parts counting


Before the balance can count parts, it must know the average part weight (i.e. reference). Proceed by putting on a certain number of the parts to be counted. The balance determines the total weight and divides it by the number of parts, the so-called reference quantity. Counting is then carried out on the basis of the calculated average piece weight.

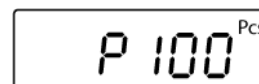
As a rule:


The higher the reference quantity the higher the counting exactness.

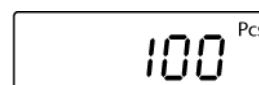
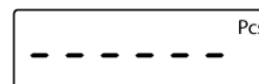
- ⇒ In weighing mode , press and hold until the message „P 10“ appears that is used to set the reference quantity.



- ⇒ Use  to set the desired reference quantity (such as 100), options include P 10, P 20, P 50, P100, P 200.



- ⇒ Place as many items to be counted (such as 100 items) as demanded by the set reference quantity and confirm by . The weighing scales calculate the reference weight. The current quantity (such as 100 items) will be displayed.



- ⇒ Remove reference weight. The balance is from now in parts counting mode counting all units on the weighing plate.


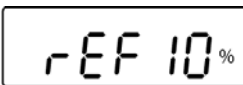

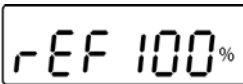

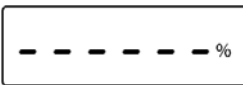
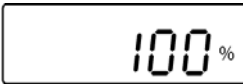

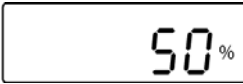




- ⇒ Back to Weighing mode by  .



7.11 Percent weighing

Percentage weighing allows you to display the weight in percent related to reference weight.

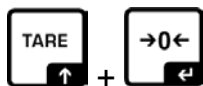
- ⇒ Press  in weighing mode (approx. 3 sec.) until “rEF 10%” is displayed. 
- ⇒ Use  to set the desired percentage value to be applied as reference (selectable rEF 10, rEF 20, rEF 50, rEF 100, rEF 200, rEF 500). 
- ⇒ Place a sample matching the set percentage value on the weighing platform and press . “-----%” will be briefly displayed. 
- ⇒ The percentage value for the sample will be displayed. 
- ⇒ Remove reference weight 
- ⇒ The display returns to „0.0 %“
- ⇒ Put on specimen 
- ⇒ In the display appears the percentage of the specimen with reference to the reference weight.
- ⇒ Back to weighing mode by pressing the  button. 

7.12 Animal weighing

The animal weighing function is suitable for weighing restless loads.

The weighing system will display a mean value derived from several weighing results.



The animal weighing program can be enabled by either calling up menu block „P4 OTH“ ⇒ „ANM“ ⇒ „ON“ (see chap. 8) or faster via key combination.



The indicator shows **HOLD** as long as the animal weighing function remains enabled.



⇒ Place the load on the weighing system and wait until the scale is steady.

⇒ Press  and  at the same time; you will hear an acoustic signal, indicating that the mean value function is enabled.

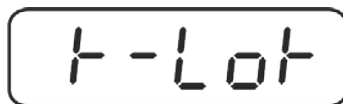
Whilst averaging is taking place you can add or remove loads as the measuring value will be constantly updated.

⇒ To deactivate the animal weighing function press  and  at the same time.

7.13 Lock keyboard


In the menu item „P4 OTH“ ⇒ „**LOCK**“ (see chap. 8) the keyboard lock can be enabled/disabled.

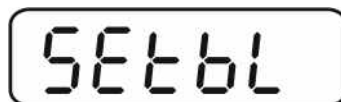
Whilst the function is enabled the keyboard will self-lock after no key has been pressed for 10 minutes. „**K-LCK**“ will be displayed as soon as a key is pressed.




To disable the lock, keep ,  and  pressed at the same time (2 s) until „**U LCK**“ appears.

7.14 Display background illumination

⇒ Keep  pressed (3s) until „**setbl**“ appears.





⇒ Press  again, the current setting will be displayed.


⇒ Press  to select the desired setting.

bl on Continuous background lighting

bl off Background illumination off


bl Auto Automatic background illumination on when weighing plate is loaded or key pressed.

⇒ Either save by  or cancel input by pressing .


Back to Weighing mode by .

7.15 Automatic switch-off function „AUTO OFF“


The unit is automatically switched off within the preset time when the display unit or the weighing bridge are not operated.


⇒ Keep  pressed (3s) until „setbl“ appears.

SEtbl



⇒ Press  to call up **AUTO OFF**-function


SEtoF

⇒ Press , the current setting will be displayed.

⇒ Press  to select the desired setting.

- of 0** Function deactivated
- of 3** Weighing system will be turned off after 3 min.
- of 5** Weighing system will be turned off after 5 min.
- of 15** Weighing system will be turned off after 15 min.
- of 30** Weighing system will be turned off after 30 min.

⇒ Either save by  or cancel input by pressing .


Back to Weighing mode by .

7.16 Setting time and date

To change date and time go to menu item "**P8 ind**" ⇒ "**dAtE**" or "**tiME**"
(See chap. 8):


Setting date:

⇒ Select menu item "**dAtE**"

⇒ Press  to confirm and the last date entered will be displayed. The first digit is flashing

12.03.17


(example)

⇒ Use the navigation keys, as described in chap. 2.1.1, to enter the current date and press  to confirm.

The current date will be shown in standby mode.


Setting time:

⇒ Select menu item "**tiME**"

⇒ Press  to confirm and the last time entered will be shown. The first digit is flashing.

22.25.14

(example)

⇒ Use the navigation keys, as described in chap. 2.1.1, to enter the current time and press  to confirm.

The time will be shown in standby mode.











7.17 Alphabet

Letters are ordered in the following order:





A	B	b	C	D	E	F	G	H	h	I	J	K	L
I	M	N	O	P	Q	R	S	U	V	W	X	Y	Z


8 Menu


8.1 Navigation in the menu:

Call up menu	<p>⇒ Switch-on balance and during the selftest press .</p> <div data-bbox="826 515 1165 622" style="border: 1px solid black; padding: 5px; text-align: center; margin: 10px 0;"> P_n </div> <p>⇒ Press , , , subsequently, the first menu block „PO CHK“ will be displayed.</p> <div data-bbox="826 828 1165 936" style="border: 1px solid black; padding: 5px; text-align: center; margin: 10px 0;"> P_oCHK </div>
	<p>⇒ From the weighing mode:</p> <p>Press and hold  until P_n appears.</p> <div data-bbox="826 1149 1165 1256" style="border: 1px solid black; padding: 5px; text-align: center; margin: 10px 0;"> P_n </div> <p>⇒ Enter the password (see above.)</p>
Select menu block	<p>⇒ With help of , the individual menu items can be selected one after the other.</p>
Select setting	<p>⇒ Confirm selected menu item by pressing . The current setting will be displayed.</p>
Change settings	<p>⇒ To change to the available settings, press the navigations keys as described in chap. 2.1.1.</p>
Acknowledge setting / exit the menu	<p>⇒ Either save by pressing  or cancel by pressing .</p>
Return to weighing mode	<p>⇒ Press  repeatedly to exit menu.</p>

8.2 Menu overview

Menu block Main menu	Menu item Submenu	Available settings / explanation		
PO CHK Weighing with tolerance range, see chap. 7.7	nEt H	Upper limit value „Tolerance check weighing“, input see chap. 7.7.1		
	nEt L	Lower limit value „Tolerance check weighing“, input see chap. 7.7.1		
	PCS H	Upper limit value „Tolerance check counting“, input see chap. 7.7.2		
	PCS L	Lower limit value „Tolerance check counting“, input see chap. 7.7.2		
	BEEP	no	Acoustic signal for weighing with tolerance range switched off	
		ok	Audio sound when weighed load is within tolerance limits	
		nG	Audio sound when weighed load is beyond tolerance limits	
	rELAY	on	Relay pilot light	
oFF				
P1 rEF ¹ Zero point settings	A2n0	Automatic zero point correction (Autozero) by changing the display, digits selectable (0, 0.5d, 1d, 2d, 4d)		
	0AUto	Zero setting range Load range where the display after switching-on the balance is set to zero. Selectable 0, 2, 5, 10, 20, 30, 50, 100 %		
	0rAGE	Zero setting range Load range where the display is set to zero by pressing  . Selectable 0, 2, 4, 10 , 20* , 50, 100%.		
	0tArE	Automatic taring „on / off“, taring range adjustable in menu item „0Auto“.		
P2 COM Interface parameter	MODE	CONT	S0 off	Continuous data output, selectable „sending 0“, yes / no
			S0 on	
		ST1	One output for stable weighing value	
		STC	Continuous data output of stable weighing values	
		PR1	<ul style="list-style-type: none">Output after pressing Precondition for alibi memory	
		PR2	Manual totalizing, see chap. 7.8  Press  and the weighing value will be added to the summation memory and issued.	

		AUTO*	For automatic totalizing see chap. 7.9 This function is used to issue and add individual weighing values automatically to the summation memory on unloading of weighing scale.	
		ASK	Remote control instructions	
		wirel	Not documented	
	BAUD	Available	Baudrate: 600, 1200, 2400, 4800, 9600*	
	Pr	7E1	7 bits, even parity	
		7o1	7 bits, odd parity	
		8n1*	8 bits, no parity	
	PTYPE	tPUP*	Standard printer setting	
		LP50	Not documented	
	LAb	LAb x	For data output format, see table below. 1	
	Prt	Prt x		
	LAnG	eng*	Standard settings English	
		chn	Not documented	
P3 CAL ¹ Configuration data see chap. 12.4	COUNT	Display internal resolution		
	DECI	Position of the decimal dot		
	DUAL	Setting balance type, capacity (Max) and readability (d)		
		off	Single-range balance	
			R1 inc	Readability
			R1 cap	Capacity
		on	Dual range balance	
			R1 inc	Readability 1st weighing range
			R1 cap	Capacity 1st weighing range
				
			R2 inc	Readability 2nd weighing range
	R2 cap		Capacity 2nd weighing range	
	CAL	noLin	For adjustment, see chap. 6.9.2	
Liner		For linearization, see chap. 6.10.2		
GrA	Gravitational constant at place of installation			
GrB	Gravitational constant at place of manufacture			
P4 OTH	LOCK	on	Keyboard lock enabled, see chap. 7.13	
		off*	Keyboard lock disabled	
	ANM ¹	on	Animal weighing enabled, see chap. 7.12	
		off*	Animal weighing disabled	
	SCr	on	watch as screensaver enabled	
off*		watch as screensaver disabled		

P5 Unt ¹ Change weighing unit see chap. 7.5	kg	on*		
		off		
	g	on		
		off*		
	lb	on		
		off*		
	oz	on		
		off*		
	tJ	on		
	off			
	HJ	on		
	off			
P6 xcl ¹		Not documented		
P7 rst ¹ Factory setting		Use  to reset balance settings to factory default.		
P8 ind	dAtE	Setting date: Format: TTMMJJ		
	tIME	Setting time: Format: HHMMSS		
	ALibi	Alibi memory		
		dAtA	Number of saved records	
		rdAtA	Read the record value	
		ErASE	Delete all data	
		ExPT	Export data (USB stick)	
	PrEt	Enter pre-tare value		
P9 Prt	485	ModE	2disP, Count	Export mode (2nd display)
		bAUd	600, 1200, 2400, 4800, 9600	Baud rate
		Pr	7o1	7 Bit, odd Parity, 1 Stop bit
			7E1	7 Bit, equal Parity, 1 Stop bit
			8n1	8 Bit, no Parity, 1 Stop bit
		io	i_tSt	
	o_tSt			Test output
	oPt	intF	USB, UdiSK, Bt, WiFi, EnEt	Select connections
		ModE (output)	no, CoUnt (USB, Bt, Wi-Fi, EnEt) no, Expt (UdiSK)	
		iP_1		IP addresses KIB-TM
		iP_2		
		iP_3		
		iP_4		
		MASK_1		Subnet mask
		MASK_2		
		MASK_3		
		MASK_4		
		GAtE_1		KIB-TM Gateway
		GAtE_2		
		GAtE_3		
		GAtE_4		


Continuation menu item P9 Prt

P9 Prt	oPt	riP_1		remote (IP-Adresse PC)
		riP_2		
		riP_3		
		riP_4		
		rPort		Remote port (Port for communication between PC and KIB-TM)
		SSid_1		SSID
		SSid_2		
		PSW_1		WLAN Password
		PSW_2		

Factory settings are marked by *.

¹ Function blocked when the adjustment switch is in the position "balance is calibratable" (adjustment switch in the "LOCK" position).

Tab. 1.: Sample logs

- Menu setting P2 Com ➔ Mode ➔ PR2
- Data output after pressing of 

Lab Prt	0	1	2	3
0~3	***** GS: 5,000kg *****	***** NT: 5,000kg TW: 5,000kg GW: 10,000kg *****	***** GS: 5,000kg TOTAL: 10,000kg *****	***** NT: 5,000kg TW: 5,000kg GW: 10,000kg Total: 10,000kg *****
4~7	***** No.: 1 GS: 5,000kg *****	***** No.: 1 NT: 5,000kg TW: 5,000kg GW: 10,000kg *****	***** No.: 1 GS: 5,000kg Total: 10,000kg *****	***** No.: 1 NT: 5,000kg TW: 5,000kg GW: 10,000kg Total: 10,000kg *****

GS	Gross weight
NT	Net weight
TW	Tare weight
NO	Number weighing processes
Total	Total of all individual weighings

9 Servicing, maintenance, disposal

9.1 Cleaning

- Before cleaning, disconnect the appliance from the operating voltage.
- Do not use aggressive detergents (solvents or similar).

9.2 Servicing, maintenance

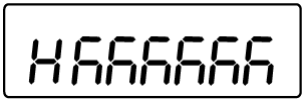
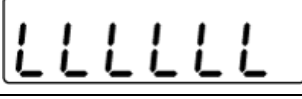
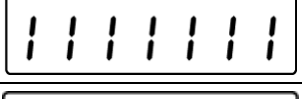
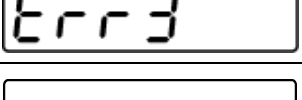
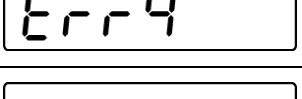

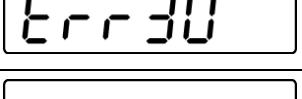

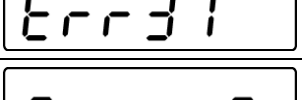
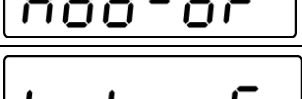
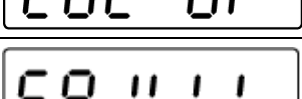
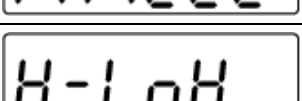
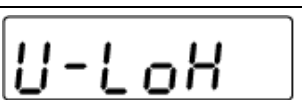
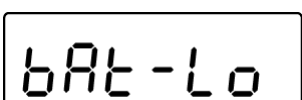
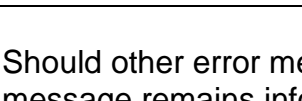
The appliance may only be opened by trained service technicians who are authorized by KERN.

Before opening, disconnect from power supply.

9.3 Disposal


Disposal of packaging and appliance must be carried out by operator according to valid national or regional law of the location where the appliance is used.

9.4 Error messages

Error message	Description
	Excess load if weight exceeds capacity of +9d
	Underweight (less than 20 d)
	The weight is too low (less than -20 d)
	Zero setting range exceeded on start-up of balance.
	Zero setting range during start-up of weighing scale or on pressing of  exceeded.
	Is displayed on setting weighing scale to zero with  , without load
	For parts counting and percentage calculation: Weighed value \leq zero
	For add-up: Total number of weighings above 999
	For add-up: Total weight above 999999
	Adjustment failed
	Keyboard locked
	Keyboard unlocked
	Capacity of batteries exhausted. (Battery voltage below 5.7 V, automatic shutdown happens at less than 5.4 V)

Should other error messages occur, switch balance off and then on again. If the error message remains inform manufacturer.

10 RS 232 interface

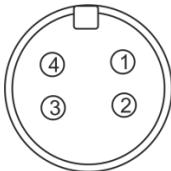
You can print weighing data automatically via the RS 232C interface or manually by pressing  via the interface according to the setting in the menu.

This data exchange is asynchronous using ASCII - Code.

The following conditions must be met to provide successful communication between the weighing system and the printer.

- Use a suitable cable to connect the display unit to the interface of the printer. Faultless operation requires an adequate KERN interface cable.
- Communication parameters (baud rate, bits and parity) of display unit and printer must match. For a detailed description of interface parameters, please refer to chapter 8, Menu block “P2 COM”

10.1 Technical data

Connection	4 pin d-subminiature bushing			
	Pin1	RX	Input	
	Pin2	TX	Output	
	Pin3	GND	Signal ground	
	Pin4	N/C	Not connected	
Baud rate	Optional 600/1200/2400/4800/9600			
Parity	8 bits, no parity / 7 bits, even parity / 7 bits, odd parity			

10.2 Printer operation / sample logs (KERN YKB-01N)


- **Weighing**

1. Continuous data output
(menu setting P2 Com ➡ Mode ➡ Com ➡ S0 on)

Menu setting P2 Com ➡ LAb 0 / Prt 0:

```
*****  
ST, GS      53.2 kg  
*****
```

```
*****  
US, GS      53.2 kg  
*****
```

2. Data output after pressing of 
(menu settings: P2 Com ➡ Mode ➡ Pr1,
Changes to the menu settings Lab and Prt do not affect the layout of the
sample log)

Menu setting P2 Com ➡ LAb 0 / Prt 0~3 or LAb 3 / Prt 4~7:


```
*****  
ST, GS      53.2 kg  
*****
```

```
*****  
ST, NT :    52.6 kg  
*****
```

- **Counting**

```
*****  
PCS          100  
*****
```

• Totalization

3. Data output after pressing of  (menu setting P2 Com ➡ Mode ➡ Pr2)

P2 Com ➡ Lab 3 / Prt 4~7:

```
*****
No. :      1
NT:    2.006kg
TW:    0.501kg
GW:    2.507kg
Total:   2.006kg
*****

*****
No. :      2
NT:    0.993kg
TW:    0.501kg
GW:    1.494kg
Total:   2.999kg
*****

*****
No. :      3
NT:    3.008kg
TW:    0.501kg
GW:    3.509kg
Total:   6.007kg
*****

*****
Total
No. :      3
Total:   6.007kg
*****
```

Menu setting P2 Com ➡ Lab 0 / Prt 0:

```
*****
GS:    1.003kg
*****

*****
GS:    2.005kg
*****

*****
GS:    3.008kg
*****

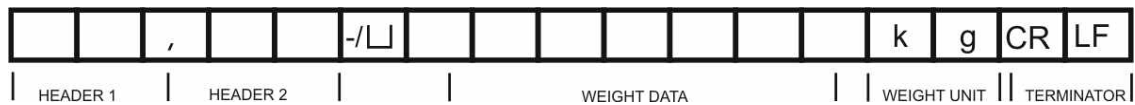
*****
Total
No. :      3
Total:   6.016kg
*****
```

Symbols:

ST	Stable value
US	Instable value
GS / GW	Gross weight
NT	Net weight
TW	Tare weight
NO	Number weighing processes
TOTAL	Total of all individual weighings
<lf>	Space line
<lf>	Space line

10.3 Output log (continuous output)

- Weighing



HEADER1: ST=STABLE , US=UNSTABLE

HEADER2: NT=NET , GS=GROSS

10.4 KERN Communications Protocol (KERN Interface Protocol)

KCP (KERN communication protocol) contains the commands that are used to control the KERN balances via the interface.



- Finish commands with CR/LF character.
- Consult the KCP manual for more information, available on our KERN website (www.kern-sohn.com).

The following commands are supported:

@	Cancel
I0	List all implemented KCP commands
I1	Query KCP level and KCP versions
I2	Query device information (type, capacity)
I3	Query device software version
I4	Query serial number
I4_A_ "xxxxxxxxx"	Set serial number (default value is K123456)
I5	Query SW-Identification number
S	Send stable weight value
SI	Send weight value immediately
SIR	Send weight value immediately and repeat
Z	Zero
ZI	Zero immediately
D	Display: Write text to display
D_ " _"	Clear Display (after D-Command)
DW	Display: Show weight

K	Keys: Set configuration
SR	Send weight value on weight change (send and repeat)
T	Tare
MM	Query/preset tare weight value
TAC	Clear tare value
TI	Tare immediately

11 Instant help

In case of an error in the program process, briefly turn off the display unit and disconnect from power supply. The weighing process must then be restarted from the beginning.

Help:

Fault

Possible cause

The displayed weight does not glow.

- The display unit is not switched on.
- Mains power supply interrupted (mains cable defective).
- Power supply interrupted.
- (Rechargeable) batteries are inserted incorrectly or empty
- No (rechargeable) batteries inserted.

The displayed weight is permanently changing

- Draught/air movement
- Table/floor vibrations
- Weighing pan has contact with other objects.
- Electromagnetic fields / static charging (choose different location/switch off interfering device if possible)

The weighing result is obviously incorrect

- The display of the balance is not at zero
- Adjustment is no longer correct.
- Great fluctuations in temperature.
- Warm-up time was ignored.
- Electromagnetic fields / static charging (choose different location/switch off interfering device if possible)

Should other error messages occur, switch display unit off and then on again. If the error message remains inform manufacturer.

12 Installing display unit / weighing bridge



- Installation / configuration of a weighing system must be carried out by a well acquainted specialist with the workings of weighing balances.

12.1 Technical data

Supply voltage	12 V / 1000mA
Max. signal voltage	5V
Zeroing range	0-2mV
Sensitivity	$\geq 0.15\mu\text{V/d}$
Resistance parameter	87 - 1100 Ω

12.2 Weighing system design

The display unit is suitable for connection to any analogue load cell in compliance with the required specifications.

The following data must be established before selecting a load cell:

- **Weighing balance capacity**
This usually corresponds to the heaviest load to be weighed.
- **Preload**
This corresponds to the total weight of all parts that are to be placed on the weighing cell such as upper part of platform, weighing pan etc.
- **Total zero setting range**
This is composed of the start-up zero setting range ($\pm 2\%$) and the zero setting range available to the user via the ZERO-key (2%). The total zero setting range equals therefore 4 % of the scale's capacity.

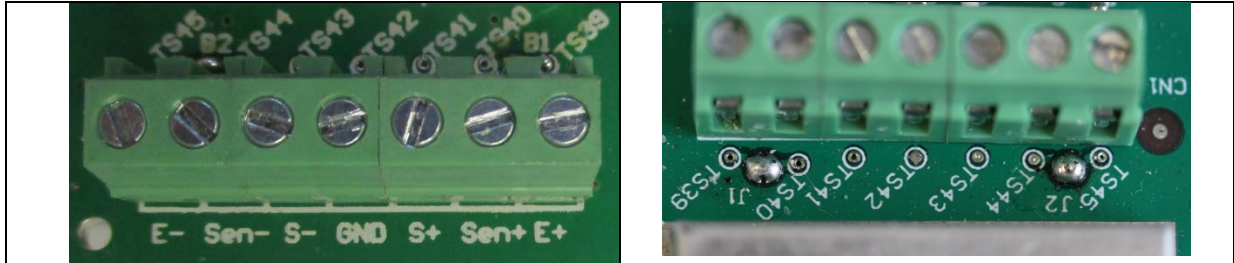
The addition of weighing scales capacity, preload and the total zero setting range give the required capacity for the weighing cell.

To avoid overloading of the weighing cell, include an additional safety margin.

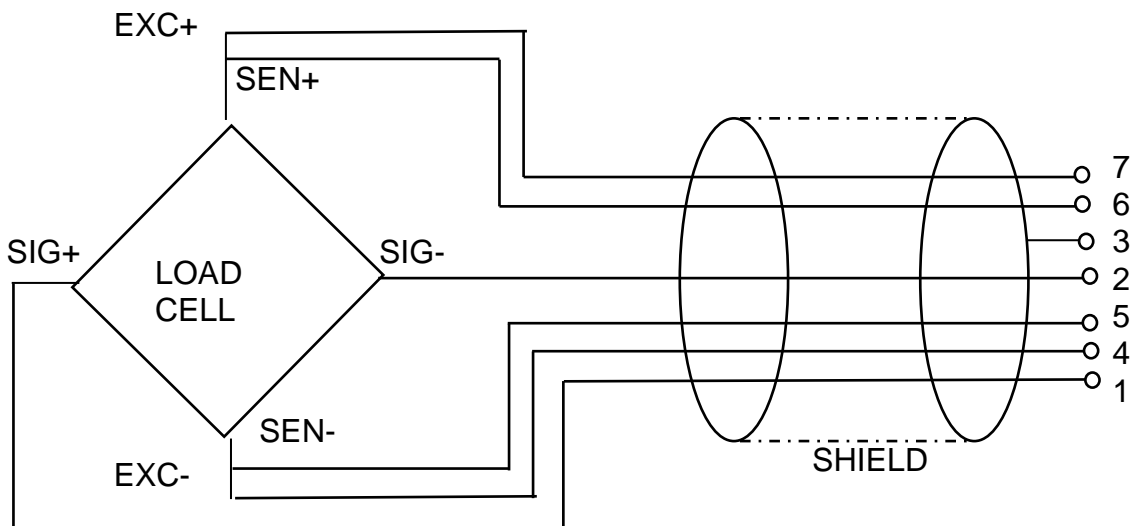
- **Smallest desired display division**

12.3 How to connect the platform

- ⇒ Disconnect the display unit from the power supply.
- ⇒ Solder the individual wires of the load cell cable to the printed circuit board (See fig.).




































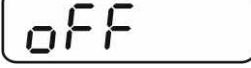

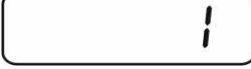
In 4-wire load cells or connection boxes (junction boxes), bridge the solder joints J1 and J2.










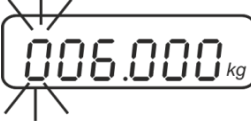





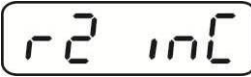

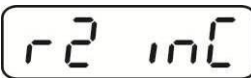


















12.4 Configure display unit

+ For menu overview see chap. 8.

Call up menu: ⇒ Switch-on balance and during the selftest press  . „Pn“ will be displayed	
⇒ Press  ,  ,  , subsequently, the first menu block „PO CHK“ will be displayed.	
⇒ Press  repeatedly until „P3 CAL“ will be displayed.	
⇒ Acknowledge with  . „CoUnt“ is displayed.	
Navigation in the menu ⇒ With help of  , the individual menu items can be selected one after the other. ⇒ Confirm selected menu item by pressing  . The current setting will be displayed. ⇒ To change to the available settings, press the navigations keys as described in chap. 2.1.1. ⇒ Either save by pressing  or reject by pressing  . ⇒ Press  repeatedly to exit menu.	
Parameter selection 1. Display internal resolution ⇒ Press  , the internal resolution will be shown. ⇒ Return to menu by  . ⇒ Use  to select another menu item.	  

<p>2. Position decimal point</p> <p>⇒ Press , the currently set position of the decimal dot is displayed.</p> <p>Press  to select the desired setting. Selectable 0, 0.0, 0.00, 0.000, 0.0000.</p> <p>Confirm input by .</p> <p>⇒ Use  to select another menu item.</p>	  
<p>3. Weighing scales type, capacity and readability</p> <p>⇒ Press , the current setting will be displayed.</p> <p>⇒ Select desired setting by .</p> <p>„off“ Single-range balance „on“ Dual range balance</p> <p>⇒ Press  to confirm, the display for entering readability (for dual range scales for the first weighing range) appears.</p> <p>⇒ Press , the current setting will be displayed.</p>	   

<p>⇒ Select desired setting with  and acknowledge by .</p> <p>⇒ Press , the display for entering capacity will appear (at dual range balance for the first range).</p> <p>⇒ Press , the current setting will be displayed.</p> <p>⇒ Using the navigation buttons (see chap. 2.1.1) select the desired setting, the active digit is flashing.</p> <p>⇒ Acknowledge with .</p> <p>In a single-range balance the entry of capacity / readability is finished.</p> <p>either in single-range balance</p> <p>⇒ Press , the unit will return to the menu Press  to call up next menu item „CAL“.</p> <p>or</p> <p>In a dual range balance enter readability and capacity of the second weighing range.</p>	   
<p>⇒ Press , the display for entering the readability of the second weighing range will appear.</p> <p>⇒ Press , the current setting will be displayed.</p> <p>⇒ Select desired setting with  and acknowledge by .</p>	  

<p>⇒ Press , the display for entering the capacity of the second weighing range will appear.</p> <p>⇒ Press , the current setting will be displayed.</p> <p>⇒ Using the navigation buttons (see chap. 2.1.1) select the desired setting, the active digit is flashing.</p> <p>⇒ Confirm input by .</p> <p>⇒ Press , the unit will return to the menu</p> <p>⇒ Press  to call up next menu item „CAL“.</p>	   
<p>4. Adjustment or linearisation Adjustment or linearisation is required after entering configuration data. For carrying out adjustment see chap. 6.9 step 4 or chap. 6.10 for linearisation</p> <p>⇒ Acknowledge using , the current setting is displayed.</p> <p>⇒ Press  to confirm, press  to select the desired setting noLin = Adjustment LineAr = Linearisation</p>	   

13 Conformity explanation/ test certificate

The current EC/EU Conformity declaration can be found online in:

www.kern-sohn.com/ce